

What is claimed is:

1. A method for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, comprising:
 - providing a storage card with processing power and wireless transmission
5 functionality, the storage card including a wireless interface; - plugging the storage card into the ACMS using a card interface, wherein the ACMS collects flight performance data and generates an ACMS report after one or more exclusive conditions are fulfilled; - using the processing power embedded in the storage card to detect whether the
10 ACMS report is generated; - after the one or more exclusive conditions are fulfilled and the ACMS report is generated, connecting the wireless interface to a ground-based network based on network attributes stored in a database on the storage card; and
wirelessly transmitting the flight performance data to a ground station through a
15 wireless network.
2. The method of claim 1, further comprising determining whether there is a connection available between the storage card and the ground station.
3. The method of claim 1, wherein the providing step includes providing a personal computer memory card international association (PCMCIA) card with processing power
20 and wireless transmission functionality.
4. The method of claim 1, further comprising erasing the flight performance data from the storage card after the transmission.
5. The method of claim 1, further comprising employing security measures to secure an access to the flight performance data.
- 25 6. The method of claim 5, wherein the employing step includes encrypting the flight performance data during transmission.
7. The method of claim 5, wherein the employing step includes employing wired equivalent privacy (WEP) during transmission.
8. The method of claim 5, wherein the employing step includes employing wireless-
30 fidelity protected access (WPA) during transmission.
9. The method of claim 5, wherein the employing step includes employing advanced encryption standard (AES) during transmission.
10. The method of claim 5, wherein the employing step includes employing extensible authentication protocol (EAP) during transmission.

11. The method of claim 1, wherein the wirelessly transmitting step includes wirelessly transmitting the flight performance data to a ground-based network through a wireless-fidelity (Wi-Fi) 802.11b network.
12. The method of claim 1, wherein the ACMS report is generated when cargo doors of the aircraft are open.
13. The method of claim 1, wherein the ACMS report is generated when a ground speed of the aircraft reaches zero.
14. The method of claim 1, wherein the ACMS report is generated when an engine fuel flow reaches zero.
15. The method of claim 1, wherein the ACMS report is generated when fuel valves of the aircraft are closed.
16. The method of claim 1, further comprising remotely accessing the ACMS and ACMS peripherals from the ground station.
17. A method for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, comprising:
- providing a storage card with processing power and wired transmission functionality;
 - plugging the storage card into the ACMS using a card interface, wherein the ACMS collects flight performance data and generates an ACMS report after one or more exclusive conditions are fulfilled;
 - using the processing power embedded in the storage card to detect whether the ACMS report is generated;
 - using an access point to establish a connection with a ground-based network through a wireless network;
 - after the one or more exclusive conditions are fulfilled and the ACMS report is generated, determining whether there is a connection available between the storage card and a ground station; and
 - transmitting the flight performance data to the ground station through the available connection.
18. The method of claim 17, wherein the wired network is an Ethernet.
19. The method of claim 17, further comprising erasing the flight performance data from the storage card after the transmission.
20. The method of claim 17, further comprising employing security measures to secure an access to the flight performance data.

21. The method of claim 17, wherein the wirelessly transmitting step includes wirelessly transmitting the flight performance data to a ground-based network through a wireless-fidelity (Wi-Fi) 802.11b network.
22. The method of claim 17, further comprising remotely accessing the ACMS and
5 ACMS peripherals from the ground station.
23. A method for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, the ACMS including an ACMS storage card, wherein the ACMS collects flight performance data, the method comprising:
- 10 modifying software on the ACMS to directly transmit the flight performance data from the ACMS storage card to a ground station;
- providing an Ethernet interface that allows communication between the ACMS storage card and an access point;
- using the access point to establish a connection with a ground-based network;
- after the one or more exclusive conditions are fulfilled, determining whether there is
15 a connection available between the ACMS storage card and the ground station; and
- transmitting the flight performance data directly from the ACMS storage card to the ground station through the available connection.
24. A system for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, comprising:
- 20 an ACMS located in an avionic device on the aircraft, the ACMS collecting flight performance data and generating an ACMS report after one or more exclusive conditions are fulfilled, the ACMS comprising:
- a storage card embedded with processing power and transmission
functionality, wherein the processing power embedded in the storage card detects
25 whether the ACMS report is generated; and
- a card interface that accommodates the storage card when plugged into the ACMS; and
- a wireless network capable of wirelessly transmitting the flight performance data to a
ground station after the one or more exclusive conditions are fulfilled and the ACMS report
30 is generated.
25. The system of claim 24, wherein the storage card is a personal computer memory card international association (PCMCIA) card embedded with processing power and wireless transmission functionality.

26. The system of claim 24, wherein the flight performance data are erased from the storage card after the transmission.
27. The system of claim 24, wherein the processing power employs security measures to secure an access to the flight performance data.
- 5 28. The system of claim 27, wherein the security measures include encrypting the flight performance data during transmission.
29. The system of claim 27, wherein the security measures include employing wired equivalent privacy (WEP) during transmission.
30. The system of claim 27, wherein the security measures include employing wireless-fidelity protected access (WPA) during transmission.
- 10 31. The system of claim 27, wherein the security measures include employing advanced encryption standard (AES) during transmission.
32. The system of claim 27, wherein the security measures include employing extensible authentication protocol (EAP) during transmission.
- 15 33. The system of claim 24, wherein the wireless network is a wireless-fidelity (Wi-Fi) 802.11b network.
34. The system of claim 24, wherein the one or more exclusive conditions include one of a group comprising cargo doors of the aircraft being open, a weight on wheels of the aircraft equaling one, a ground speed of the aircraft reaching zero, an engine fuel flow reaching zero, and fuel valves of the aircraft being closed.
- 20 35. A computer readable medium providing instructions for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, the instructions comprising:
- providing a storage card with processing power and wireless transmission functionality, the storage card including a wireless interface;
- 25 plugging the storage card into the ACMS using a card interface, wherein the ACMS collects flight performance data and generates an ACMS report after one or more exclusive conditions are fulfilled;
- using the processing power embedded in the storage card to detect whether the ACMS report is generated;
- 30 after the one or more exclusive conditions are fulfilled and the ACMS report is generated, connecting the wireless interface to a ground-based network based on network attributes stored in a database on the storage card; and

wirelessly transmitting the flight performance data to a ground station through a wireless network.

36. A computer readable medium providing instructions for remotely communicating and interfacing with an aircraft condition monitoring system (ACMS) on an aircraft, the

5 instructions comprising:

providing a storage card with processing power and wired transmission functionality;

plugging the storage card into the ACMS using a card interface, wherein the ACMS collects flight performance data and generates an ACMS report after one or more exclusive conditions are fulfilled;

10 using the processing power embedded in the storage card to detect whether the ACMS report is generated;

using an access point to establish a connection with a ground-based network through a wireless network;

15 after the one or more exclusive conditions are fulfilled and the ACMS report is generated, determining whether there is a connection available between the storage card and a ground station; and

transmitting the flight performance data to the ground station through the available connection.